

ABSTRACT

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An exposure method capable of increasing the illuminance of an exposure beam, such as a vacuum ultraviolet beam, that is easily absorbed by any of a wide variety of substances on a substrate onto which a pattern is to be transferred without complexing the overall mechanism of the exposure apparatus. A reticle (R) in a reticle operating unit (6) is illuminated with an F2 laser beam (wavelength: 157 nm) serving as an exposure beam from an illumination optical system unit (5). The image of the pattern of the reticle (5) is transferred onto a wafer (W) in a wafer operating unit (7) through a projection optical system. The illumination optical system unit (5), reticle operating unit (6), projection optical system (PL), and wafer operating unit (7) are enclosed in an illumination system chamber (1), a reticle chamber (2), a lens barrel (3), and a wafer chamber (4), respectively and the concentrations of the light-absorbing substances along the optical path from the illumination system chamber (1) to the wafer chamber (4) are controlled separately.